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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,720	09/11/2003	Shenqing Fang	AMD-H0634	8251
45592	7590	12/22/2004	EXAMINER	
WAGNER, MURABITO & HAO, LLP			HUYNH, ANDY	
TWO NORTH MARKET STREET			ART UNIT	
THIRD FLOOR			PAPER NUMBER	
SAN JOSE, CA 95113			2818	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/661,720

Applicant(s)

FANG, SHENQING

Examiner

Andy Huynh

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

In the Response to Restriction Requirement dated November 29, 2004, Applicant has elected without traverse the Invention II, claims **8-14** is acknowledged. Accordingly, claims **1-7 and 15-20** are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 35 § 1.142(b) and MPEP § 821.03. Applicant has the right to file a divisional application covering the subject matter of the non-elected claims **1-7 and 15-20**.

### *Specification*

The disclosure is objected to because of the following informalities:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Drawings*

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “330” of Fig. 3 has been used to designate drain and sidewall spacers. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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***Claim Objections***

Claim 8 is objected to because of the following reasons.

In line 9, "said substrate" should read --a substrate--, in lines 9 and 11, "difussion" should read --diffusion--, and in line 11, "a silicide" in the "a drain ... dopant from a silicide" should read --said silicide--.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "configured to reduce leakage current" is vague and confusing. What does the "configured to" mean?

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **8, 9 and 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (USP 5,814,854 hereinafter referred to as "Liu") in view of Misra et al. (USP 5,960,270 hereinafter referred to as "Misra").

Regarding claims **8, 12 and 13**, Liu discloses in Figs. 5A-5G and the corresponding texts as set forth in column 4, line 1-column 6, line 31, a memory cell comprises:

- a control gate component 108 having a capacity to receive a charge;

- an oxide region 102 having electrical charge insulation characteristics and electrical charge penetration characteristics, said oxide region coupled to said control gate;

- a floating gate 110 having a charge trapping region, said floating gate coupled to said oxide region;

- a well component/p-well 122 having a charge doping characteristic, said well coupled to said floating gate component;

- a source component 118, n<sup>+</sup> having opposite charge doping characteristics; said source component coupled to a substrate; and

- a drain component 116 having similar doping charge characteristics to said source component, said drain component coupled to said substrate.

Liu fails to teach a source component and a drain component are formed by implantation of a dopant and diffusion of said dopant from a silicide.

Misra teaches in Fig. 4 that a source region 26 and a drain region 28 are formed by implantation of a dopant/arenic and diffusion of said dopant from a layer of cobalt silicide 18 (col. 4, lines 42-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form a source region and a drain region by implantation of a dopant/arenic and diffusion of said dopant from cobalt silicide, as taught by Misra in order to form both n-type source and drain regions and p-type source and drain regions via thermal diffusion, a double masking step and double ion implant process into different regions of the layer of cobalt silicide is utilized to form both p-doped regions and an n-doped regions of the layer of cobalt silicide. If only n-channel or p-channel transistors are formed on one IC, then insitu doping of the silicide layer may be performed with one of either n-type impurities or p-type impurities (col. 4, lines 53-62) to incorporate into Liu's structure to arrive the claimed invention.

Regarding claim 9, Liu discloses in Figs. 5A-5G said source and drain form shallow junctions.

Regarding claim 11, Liu discloses said source and drain components have reduced resistivity characteristics (col. 5, lines 64-67).

Regarding claim 14, Liu discloses in Fig. 5F the memory cell further comprises a sidewall spacer except for that the sidewall spacer has a thickness of about 50 ' to about 800 ' . It would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the sidewall spacer has a thickness of about 50 ' to about 800 ' , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

***Conclusion***

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ah

Andy Huynh

12/17/04

Patent Examiner